

Title	COOKIE BAR COAL
Level	Primary/Middle (K - 8).
Subject	Earth Science / Environmental Science.
Duration	35 minute cookie preparation; 20 minute demonstration/discussion.
Objective	Observe the effect of heat and pressure on materials representing those involved in the formation of coal.
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➤ **BACKGROUND INFORMATION**

Before the class begins, make the cookie bars, by following these directions.

1. Melt the margarine in the 9 x 13 inch pan.
2. Mix the graham cracker crumbs with melted margarine in the mixing bowl, and then pat the mixture firmly into the bottom of the pan, spreading it evenly.
3. Sprinkle the chocolate and the butterscotch chips over the "crust," and then add the almonds, walnuts, and coconut.
4. Pour one can of Eagle brand milk (as evenly as possible) over the top of the cookie.
5. Bake the cookies at 350oF for minutes or until its lightly browned around the edges
6. When it cools, cut the cookie into bars.

Note: If you prefer (and have the facilities), students can prepare the cookie bars in class. This would add to the interest of the activity.

➤ **ACTIVITY**

1. Have all of the empty ingredients and packages (and any unused ingredients) on display at the front of the classroom.
2. Explain that just as there are many ingredients needed to make the cookie bars, many kinds of decayed plant and animal matter were needed to make coal. Tell the students that these ingredients will be arranged in layers, just as coal-producing matter was arranged in layers millions of years ago.
3. At this point, distribute the baked cookie bars to the students so that they can observe which of the original ingredients can be identified, and which cannot.
4. Discuss how heat from the oven changed some of the ingredients. In a similar way, materials in the earth were changed into coal by natural heat and pressure.